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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/719,486	11/20/2003	Juan A. Coronado	TUC920030139US1	2523
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4231 S. FREMONT AVENUE			ART UNIT	
TUCSON, AZ 85714			PAPER NUMBER	

2186

DATE MAILED: 12/13/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No. 10/719,486	Applicant(s) CORONADO ET AL.	
	Examiner Ryan Dare	Art Unit 2186	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 11/20/2003.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-30 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-30 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☒ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 20 November 2003 is/are: a) ☐ accepted or b) ☒ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|---|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date <u>03/05/2004</u> . | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Drawings

1. The drawings are objected to as failing to comply with 37 CFR 1.84(p)(5) because they include the following reference character(s) not mentioned in the description: 175, 176, 177, 178, 180, 190, and 194.
2. The drawings are objected to as failing to comply with 37 CFR 1.84(p)(5) because they do not include the following reference sign(s) mentioned in the description: NASD 245, controller 246, and memory 247.
3. The drawings are objected to as failing to comply with 37 CFR 1.84(p)(4) because reference character "UCB 510" has been used to designate all three arrows in fig. 5A.
4. Corrected drawing sheets in compliance with 37 CFR 1.121(d) are required in reply to the Office action to avoid abandonment of the application. Any amended replacement drawing sheet should include all of the figures appearing on the immediate prior version of the sheet, even if only one figure is being amended. Each drawing sheet submitted after the filing date of an application must be labeled in the top margin as either "Replacement Sheet" or "New Sheet" pursuant to 37 CFR 1.121(d). If the changes are not accepted by the examiner, the applicant will be notified and informed of any required corrective action in the next Office action. The objection to the drawings will not be held in abeyance.

Specification

5. The disclosure is objected to because of the following informalities: The term/acronym "UCB" is not defined in the specification. It is the duty of Applicant to ensure that it is clear what is meant by UCB 510, and to make it consistent with figures 5A and 5B.
6. The lengthy specification has not been checked to the extent necessary to determine the presence of all possible minor errors. Applicant's cooperation is requested in correcting any errors of which applicant may become aware in the specification.

Claim Objections

7. Claim 30 is objected to because of the following informalities: Claim 31 depends from non-existent claim 31. Examiner believes claim 30 is intended to depend from claim 21 and will be treated as such for the remainder of this Office Action. Appropriate correction is required.
8. Claim 1 is objected to because of the following informalities: Line 9 says "assigning each host computer to the a host computer group." Examiner believes this should say "assigning each host computer to a host computer group" and has been treated as such for the remainder of this Office Action. Appropriate correction is required.

Claim Rejections - 35 USC § 112

9. The following is a quotation of the first paragraph of 35 U.S.C. 112:

The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

10. Claims 1-30 are rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the enablement requirement. The claim(s) contains subject matter which was not described in the specification in such a way as to enable one skilled in the art to which it pertains, or with which it is most nearly connected, to make and/or use the invention. It is unclear how the “current base logical volume” is generated, such as in claim 1, line 17. It is not clear how it differs from an original base logical volume, and whether “current base logical volume” is just a pointer to another logical volume or a new logical volume. Claims 1-4, 11-14 and 21-24 have been rejected under 35 U.S.C. 103, as the Examiner has made interpretation decisions as discussed in the section below.

11. With respect to claims 6-10, 16-20, and 26-30, the Examiner is unclear what it means to assign or unassign a logical volume, and was not able to make a reasonable interpretation to treat these claims with respect to prior art.

Claim Rejections - 35 USC § 103

12. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the

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invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

13. The factual inquiries set forth in *Graham v. John Deere Co.*, 383 U.S. 1, 148

USPQ 459 (1966), that are applied for establishing a background for determining

obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.
4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

14. Claim 1-2, 11-12, and 21-22 are rejected under 35 U.S.C. 103(a) as being unpatentable over McKean et al., US Patent 6,438,648, in view of Fairchild et al., US PG Pub 2002/0069307.

15. With respect to claim 1, McKean et al. teach a method to control access to logical volumes in an information and retrieval system, comprising the steps of:

providing an information storage and retrieval system comprising a plurality of logical volumes, in fig. 1, data storage system 100, and described in col. 1, lines 24-44.

forming (N) host computer groups, wherein (N) is greater than or equal to 1, in fig. 2, numeral 150 and in fig. 3.

assigning each host computer to a host computer group, in fig.3, step 222.

forming (N) logical volume groups, in fig. 1, disk drives 132 through 135;

assigning one or more of said plurality of logical volumes to a logical volume group, in fig. 1, where the logical volume group is represented by each of the disk drives, which contain one or more logical units, as described in col. 1, lines 36-50;

McKean et al. fail to teach the use of parallel access volumes (PAVs), as they were not widely used at the time of invention. Fairchild et al., whose patent has a later date of invention, teach the use of parallel access volumes in an information storage and retrieval system, specifically the steps of:

creating a parallel access volume, in par. 47, lines 3-6;

persistently associating said parallel access volume with an original base logical volume, wherein said original base logical volume is assigned to the (i)th logical volume group, wherein (i) is greater than or equal to 1 and less than or equal to (N), in par. 47;

determining the current base logical volume associated with said parallel access volume, in fig. 9, step 160 (which is reached after it is determined that the device is a PAV in decision block 153);

operative if said current base logical volume is said original base logical volume, permitting each of said one or more host computers assigned to the (i)th host computer group to access said original base logical volume, in the "NO" branch of decision block 153 of fig. 9.

operative if said current base logical volume is not said original base logic volume, permitting each of said one or more host computers assigned to the (i)th host computer group to access said current base logical volume, in fig. 9, step 165.

16. With respect to claim 2, McKean et al. and Fairchild et al. teach the method of claim 1, as discussed supra. McKean et al. teach the steps of:

requesting by one of said plurality of host computers to access a designated logical volume, in fig. 2, where each computer in the same group sends the same target ID to the controller 128;

determining that said requesting host computer is assigned to the (j)th host computer group, in col. 6, lines 34-46, where j is the target ID of the group.

McKean et al. fail to teach the use of PAVs. Fairchild et al. teach:

determining if said designated logical volume is a parallel access volume, in fig. 9, decision block 153;

operative if said designated logical volume is a parallel access volume, determining the current base logical volume associated with said parallel access volume, in fig. 9, step 160.

McKean et al. teach:

determining if said current base logical volume is assigned to the (j)th logical volume group, in col. 7, lines 60-67.

Fairchild et al. fail to teach the use of host computer groups to control access rights to logical volume groups, but if you were to modify the invention of McKean et al. with PAVs as with the invention of Fairchild et al., it would be obvious to one of ordinary skill in the art to include the parallel access volume in the same group as the base volume because if a host computer group has access to the original base volume, it should have access rights to the parallel access volume, since it contains the same data, thereby teaching the limitations:

operative if said current base logical volume is assigned to the (j)th logical volume group, permitting said requesting host to access said current base logical volume;

operative if said current base logical volume is not assigned to the (j)th logical volume group, disallowing said requesting host from accessing said current base logical volume.

17. With respect to claim 11, McKean et al. teach an article of manufacture comprising a computer useable medium having computer readable program code disposed therein to control access to logical volumes disposed in an information storage and retrieval system using parallel access volumes, in fig.2, controller 128, wherein said information storage and retrieval system comprises a plurality of logical volumes, in fig. 2, numeral 47, and wherein a plurality of host computers are capable of communicating with said information storage and retrieval system, in fig. 2, the computer readable program code comprising a series of computer readable program steps to effect:

receiving a request from one of said plurality of host computers to access a designated logical volume, wherein said requesting host is assigned to the (j)th host computer group, in fig. 2, where each computer in the same group sends the same target ID to the controller 128;

McKean et al. fail to teach the use of PAVs. Fairchild et al. teach:

determining if said designated logical volume is a parallel access volume comprising an alias, in fig. 9, decision block 153;

operative if said designated logical volume is a parallel access volume, determining if the original base logical volume persistently associated with said parallel access volume is assigned to the (j)th logical volume group, in par. 47;

operative if said current base logical volume is said original base logical volume, permitting each of said one or more host computers assigned to the (j)th host computer group to access said original base logical volume, in the "NO" branch of decision block 153 of fig. 9.

operative if said current base logical volume is not said original base logical volume, permitting each of said one or more host computers assigned to the (i)th host computer group to access said current base logical volume, in fig. 9, step 165.

18. With respect to claim 12, McKean et al. teach the article of manufacture of claim 11, wherein a first person owns said requesting host computer, and a second person owns said article of manufacture, in fig. 2, where one of the computers 142-148 is the requesting host computer and the article of manufacture is the controller 128.

19. Claim 21 teaches a computer program product having computer readable program code, which performs the same functions of the computer readable program code embodied on an article of manufacture in claim 11, so claim 21 is therefore rejected using similar logic used for claim 11.

20. With respect to claim 22, McKean teaches the computer program product of claim 21, wherein a first person owns said requesting host computer, and a second person owns said article of manufacture, in fig. 2, where one of the computers 142-148 is the requesting host computer and the article of manufacture is the controller 128.

21. It would have been obvious to one of ordinary skill in the art at the time the invention was made, to modify the information and storage retrieval system using parallel access volumes of Fairchild et al. with the information storage and retrieval system control access method of McKean et al. in order to allow simultaneous access to a logical volume, as taught by Fairchild et al. in par. 44, and to simplify the management of host computers by grouping them together, which thereby reduces the amount of RAM needed to control access by the host computers to the logical volumes, as taught by McKean et al. in col. 3, lines 54-63.

22. Claims 3-4, 13-14, and 23-24 are rejected under 35 U.S.C. 103(a) as being unpatentable over McKean et al. and Fairchild et al. as applied to claims 1-2 above, and further in view of Yamagami et al., US PG Pub 2003/0233518.

23. With respect to claim 3, McKean et al. and Fairchild et al. teach all other limitations of the parent claims as discussed supra, but fail to teach reassigning aliases. Yamagami et al. teach:

receiving a request to reassign said alias to a different one of said plurality of logical volumes, in fig. 7, step 701. Reassigning an alias is synonymous with creating another mirror, which is what Yamagami et al. teaches;

determining if said different logical volume and said original base logical volume are assigned to the same logical volume group, in fig. 7, steps 703 and 704. The user can only access volumes in his own group. Therefore the base logical volume and the candidates for a mirror are in the same volume group (pool);

operative if said different logical volume and said original base logical volume are assigned to the same logical volume group, reassigning said alias to said different base logical volume, in fig. 7, step 706;

operative if said different logical volume and said original base logical volume are not assigned to the same logical volume group, denying the request to assign the alias, in fig. 7, step 703, where it checks to see if the user can access the specified volume pool.

24. With respect to claim 4, McKean et al. and Fairchild et al. teach all other limitations of the parent claim as discussed supra, but fail to teach deleting an alias. Yamagami et al. teach:

receiving a request to delete said alias, in fig. 8, step 801, where deleting an alias is synonymous with deleting a mirror;

deleting said alias, in fig. 8, step 802.

25. Claim 13 teaches an article of manufacture containing a computer readable program code that performs the method of claim 3, and is therefore rejected using similar logic.

26. Claim 14 teaches an article of manufacture containing a computer readable program code that performs the method of claim 4, and is therefore rejected using similar logic.

27. Claim 13 teaches a computer program product containing a computer readable program code that performs the method of claim 3, and is therefore rejected using similar logic.

28. Claim 14 teaches a computer program product containing a computer readable program code that performs the method of claim 4, and is therefore rejected using similar logic.

29. It would have been obvious to one of ordinary skill in the art, at the time the invention was made, to modify the information storage and retrieval system of McKean et al. and Fairchild et al. with the information storage and retrieval system of Yamagami et al. in order to choose the ideal mirror for performance and reliability, as taught by Yamagami et al. in paragraphs 8-14.

Conclusion

30. The prior art made of record on form PTO-892 and not relied upon is considered pertinent to applicant's disclosure. Applicant is required under 37 C.F.R. § 1.111(c) to consider these references fully when responding to this action. The documents cited therein teach similar information storage and retrieval systems

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Ryan Dare whose telephone number is (571)272-4069. The examiner can normally be reached on Mon-Fri 9:30-6.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Matt Kim can be reached on (571)272-4182. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).



Ryan A. Dare
December 9, 2005



MATTHEW D. ANDERSON
PRIMARY EXAMINER